

DECISION THEORY AND ANTITRUST RULES

C. FREDERICK BECKNER III
STEVEN C. SALOP*

I. INTRODUCTION

There is ongoing controversy over the proper antitrust decision process that regulatory commissions and the courts should use to evaluate joint ventures and other horizontal restraints. This controversy involves the question of whether to analyze horizontal restraints under the per se rule, the classical rule of reason, the "quick look," the Federal Trade Commission's "inherently suspect" standard, or some other antitrust standard.¹ This controversy has spilled over into the area of vertical restraints as well.² In granting certiorari in the *California Dental Association* case, the Supreme Court has indicated its willingness to revisit this issue.³

In this article, we join the fray. However, rather than simply utilizing standard micro-economic principles, we instead apply some basic economic reasoning from an area known to economists as "decision theory." Decision theory sets out a *process* for making factual determinations and decisions when information is costly and therefore imperfect. It formulates a methodology for determining when to make decisions on

* Respectively, Member of the District of Columbia Bar and Professor of Economics and Law, Georgetown University Law Center, Washington, D.C. This article is a revised, non-technical version of our earlier working paper, *Issue Sequencing and Summary Disposition in an Efficient Legal Process* (Sept. 1995). An earlier version of this article was presented at the FTC Joint Venture Hearings (June 1997). We would like to thank Stephen Calkins, A. Douglas Melamed, and James Sonda for comments on an earlier draft and Frank Easterbrook, Thomas Krattenmaker, and Robert Pitofsky for helpful conversations.

¹ The key cases include *FTC v. Superior Ct. Trial Lawyers Ass'n (SCTLA)*, 493 U.S. 411 (1990); *FTC v. Indiana Fed'n of Dentists (Indiana Dentists)*, 476 U.S. 447 (1986); *NCAA v. Board of Regents*, 468 U.S. 85 (1984); *Broadcast Music, Inc. v. CBS, Inc. (BMI)*, 441 U.S. 1 (1979); *Continental T.V., Inc. v. GTE Sylvania Inc. (Sylvania)*, 433 U.S. 36 (1977); and *Massachusetts Bd. of Registration in Optometry (Mass. Board)*, 110 F.T.C. 549 (1988).

² See *Intel Corporation*, FTC Docket No. 9288 (June 8, 1998).

³ *California Dental Ass'n*, 5 Trade Reg. Rep. (CCH) ¶ 24,007 (1996) (*Cal. Dental*), *aff'd*, *California Dental Ass'n v. FTC*, 128 F.3d 720 (9th Cir. 1997), *cert. granted*, 1998 WL 159212 (1998).

the basis of current information and when to gather and consider further information before making a decision.⁴

Courts and regulatory commissions are decision makers.⁵ They are also necessarily information gatherers and fact finders.⁶ Hence, decision theory can be used to understand and improve the judicial decision making processes. This article summarizes some of this decision theoretic analysis and applies it in the context of the antitrust principles governing joint ventures and other horizontal restraints.

We raise more questions than we answer. We do not claim that decision theory identifies a unique best antitrust standard to cover all restraints. However, we do claim that by adopting a decision theoretic approach, or at least by recognizing the decision theoretic aspects of alternative antitrust standards, regulatory commissions and courts can better understand the key role of information in determining an appropriate antitrust standard. In this way, they can better balance the benefits and costs of additional information.

The need to take into account the role that information plays in antitrust litigation is especially important because of the role that "categorization" plays in the traditional antitrust analysis. The "categorization" stage not only specifies the substantive standards, but also determines (implicitly) what information is relevant to the analysis and in what sequence that information should be considered. This may lead back to an inefficient result. Thus, an understanding of decision theory will enable courts to escape some of the shortcomings in the current antitrust orthodoxy and to create a more rational decision process.

In addition, our analysis does lead to a number of concrete suggestions in horizontal restraint matters. We provide a few suggestions for potential improvements in the application of antitrust standards. First, the standard for horizontal price restraints should not ignore low-cost information on market power when it is available. A rigid focus solely on efficiency benefits to the exclusion of absolutely all market power information does not make sense when that market power information has trivial cost. Second, in such cases, the evaluation of efficiencies in the initial stage should be limited to more easily available information and should

⁴ See Herbert Simon, *Theories of Decision Making in Economics*, 44 AM. ECON. REV. 253 (1959); MORRIS DEGROOT, *OPTIMAL STATISTICAL DECISIONS* (1970).

⁵ See John Kaplan, *Decision Theory and the Fact Finding Process*, 20 STAN. L. REV. 1065 (1968); Gary Becker, *Crime and Punishment: An Economic Approach*, 76 J. POL. ECON. 169 (1968).

⁶ We discuss the role courts play in information gathering in more detail below in Part II.B.

no
like
an
ma
tio
red
ma
tha
dec
info
the
but

Co
must
dec
cour
how
tion,
to the
quest
decis
a cour
the co
the be

Her
There
sis, an
sumpt
addit
oppos
out by
contro

⁷ For

⁸ In th
however,
The cou
that info
consider
before lia
Analysis, 1
in a case,

en to gather and consider further

are decision makers.³ They are
nd fact finders.⁶ Hence, decision
d improve the judicial decision
es some of this decision theoretic
he antitrust principles governing
straints.

er. We do not claim that decision
standard to cover all restraints.
a decision theoretic approach,
theoretic aspects of alternative
ons and courts can better under-
mining an appropriate antitrust
alance the benefits and costs of

role that information plays in
because of the role that "catego-
t analysis. The "categorization"
standards, but also determines
it to the analysis and in what
sidered. This may lead back to
nding of decision theory will
omings in the current antitrust
decision process.

umber of concrete suggestions
a few suggestions for potential
rust standards. First, the stan-
d not ignore low-cost informa-
a rigid focus solely on efficiency
ll market power information
power information has trivial
n of efficiencies in the initial
ilable information and should

n Economics, 44 AM. ECON. REV. 253
ECISIONS (1970).

nding Process, 20 STAN. L. REV. 1065
omic Approach, 76 J. POL. ECON. 169

gathering in more detail below in

not involve a very costly quantitative evaluation of the magnitude of likely efficiency benefits. It is only necessary to carry out a more refined analysis of the likelihood of efficiency benefits when there are probable market power harms. Third, judicial bodies could use sequential information gathering and decision analysis to a greater extent in order to reduce informational costs. Moreover, in contrast to the behavior of many judicial bodies and regulatory agencies, our framework suggests that, as a procedural matter, the adoption of truncated information and decision analysis makes far more sense when done in advance, before information is gathered, rather than after. If the court waits until after the information is gathered, it can economize on its decision making, but at the cost of having gathered unnecessary information.

II. THE DECISION THEORETIC APPROACH

Courts, regulatory commissions, and other judicial bodies⁷ ultimately must decide what view of the facts is correct.⁸ Courts often also must decide whether to permit or enjoin certain activities. Therefore, we view courts primarily as decision makers. In order to make these decisions, however, courts must form presumptions, collect and process information, make relevant findings of fact, and apply the relevant legal standards to those findings. In jury trials, judges determine the way in which the questions are presented to the jury. A court inevitably must make its decisions on the basis of limited and imperfect information. As a result, a court can never be absolutely certain that its factual findings are correct, the correct litigant prevails, or the remedy it mandates still would be the best outcome if all the facts were known.

Hence, when acting as decision makers, courts require information. There are three sources of this information: presumption, logical analysis, and factual investigation. Through experience, courts create presumptions to guide their factual investigations and decision making. In addition, courts can gather information. In our adversarial system (as opposed to an inquisitorial system), the fact gathering is literally carried out by the parties, not the court. A court, however, exerts significant control over information gathering by creating a process of discovery

⁷ For simplicity of exposition, we will refer to all these judicial entities as courts.

⁸ In the judicial context, juries (and not judges) are often the finders of fact. Judges, however, control the information gathering process that is the central focus of our analysis. The court determines what information is presented to the juries and in what order that information is presented. The jury instruction explains how the evidence should be considered. For example, the judge can bifurcate a trial, and order damages to be tried before liability or vice-versa. See William Landes, *Sequential Versus Unitary Trials: An Economic Analysis*, 12 J. LEGAL STUD. 99 (1993). Judges also decide the ultimate legal issues involved in a case, including whether there are any disputed issues of material fact.

and issue formulation that affects the amount and accuracy of the information. Typically, the court determines that some issues and facts are relevant and admissible while others are not. It rules out some arguments and facts and permits others to be heard. In making these determinations, the court must be mindful of the financial, time, and management costs that it is inflicting on the parties (including third parties) and itself. Of course, regulatory commissions and executive agencies have the ability to engage in fact gathering.

This interrelationship between decision making and information is not unique to courts. Every decision maker faced with imperfect information must resolve three related questions. First, assuming that a decision must be made with imperfect information, what is the optimal decision? Second, how much information should the decision maker gather and consider in making a decision? Third, if information is to be gathered, exactly which information should be considered and in what order?

A. PRIVATE DECISION MAKERS

To understand these issues better, consider a private decision maker. Suppose that a company has an investment opportunity, such as a new product introduction or a research and development (R&D) initiative. Suppose further that this investment is risky—that is, the company cannot perfectly predict the ultimate value or profitability of the investment. The risk and uncertainty, however, is not unbounded. For example, after forming presumptions about this type of investment and gathering additional information through a preliminary study, suppose that the company's expectations of success and failure can be reduced to the following concrete risk-reward tradeoff: (1) if the investment succeeds, it will increase the net value of the firm by \$150, after taking the opportunity cost of the investment into account; (2) if it fails, it will reduce the net value of the firm by \$100; and (3) the likelihood that the investment will succeed is 50 percent.

1. *Efficient Decision Making with Limited Information*

Based on these expectations about potential outcomes, should the company undertake this investment? This question is an issue of optimal decision making with limited information. Assuming for simplicity that the firm is risk neutral,⁹ the decision maker should calculate the expected net benefit from investing relative to forgoing the investment. On these numbers, the expected net benefit from investing is \$25 (i.e., 50 percent

⁹ See *infra* note 27.

amount and accuracy of the information that some issues and facts are or are not. It rules out some arguments. In making these determinations, social, time, and management costs (including third parties) and itself. Of executive agencies have the ability

ion making and information is not faced with imperfect information. First, assuming that a decision is made, what is the optimal decision? Should the decision maker gather and if information is to be gathered, how is it considered and in what order?

ION MAKERS

Consider a private decision maker. A new investment opportunity, such as a new product development (R&D) initiative, is presented. The company cannot know the profitability of the investment. The cost is not unbounded. For example, the cost of investment and gathering preliminary study, suppose that the cost of failure can be reduced to the minimum (1) if the investment succeeds, the cost is \$150, after taking the opportunity; (2) if it fails, it will reduce the cost of failure that the investment

h Limited Information

potential outcomes, should the question be an issue of optimal decision. Assuming for simplicity that the decision maker should calculate the expected value of forgoing the investment. On these facts, investing is \$25 (i.e., 50 percent

$\times \$150 + 50 \text{ percent} \times -\$100 = +\$25$).¹⁰ Thus, balancing risk and reward, this investment will increase the expected value of the firm by \$25 more than would forgoing the investment. Therefore, the investment should be undertaken.

Although the decision to undertake the investment clearly is optimal, the investment actually may turn out to reduce the value of the firm by \$100. In that event, the decision maker would conclude after the fact (ex post) that the decision was an error. Nevertheless, based on the limited information available at the time the decision was made (ex ante), the decision was proper. In this situation, it is something of a misnomer to call the decision an error because the decision was perfectly rational in light of the limited information available. (By the same token, guessing "heads" when the coin ultimately turns up "tails" is an ex post error but not an ex ante error.) The decision maker would reason that he knew that investing potentially would lead to an ex post error; indeed, he knew that the likelihood of it leading to an ex post error was 50 percent. He similarly knew, however, that not investing also could have led to an ex post error, in that the investment might have succeeded; the likelihood of that error also was 50 percent.

The decision theory approach can be reformulated in terms of minimizing the cost of error. What are the relative costs of the two possible errors in this example? The cost of erroneously investing (i.e., investing when it turns out that the product fails) is \$100. The cost of erroneously not investing (i.e., not investing when it turns out that product would have succeeded) is \$150. Taking the probabilities of each type of error into account (here, 50-50), the "expected" cost of error is the cost of error times the probability of error. On these facts, the expected cost of error from not investing is higher. It is \$75 (i.e., 50 percent times \$150), whereas the expected error cost from investing is only \$50 (i.e., 50 percent times \$100). Thus, it is optimal to invest because the expected cost of error is lower.

Whether framed in terms of error analysis or expected net benefit, the answer is the same. This answer represents the first key insight of the economic approach to decision making. Rational decision making is based on weighing the benefits and costs of alternative actions.

2. How Much Information to Gather and Consider

In the previous example, the decision to invest is optimal (or rational) in light of the amount of information that the firm has. However, this

¹⁰ We treat the expected value from forgoing the investment as zero. We assume that the opportunity cost of the investment funds is netted out of the returns on the investment.

raises a second possibility. Rather than making the decision on the basis of presumptions and preliminary investigation, the firm could gather and consider additional information in order to reduce the risk of error and possibly make a better decision. Information gathering also is an economic decision because information gathering and processing itself is a costly investment. The efficiency of gathering and using additional information depends on the cost of the information versus the benefits.

In evaluating investment in information, the benefit of additional information is that it may reduce the likelihood of making a costly erroneous decision. In this sense, the decision to consider additional information can be seen as a tradeoff between two types of costs—error costs on the one hand and information costs on the other. A rational decision maker will try to minimize the sum of the two types of costs.¹¹ This is the second key insight of the decision theoretic approach.

To illustrate this reasoning, suppose that the firm in the example above could resolve fully all uncertainty by further costly investigation. Should such "perfect" information be gathered before making the decision? Putting aside the cost of the information for the moment, the decision maker should reason as follows. The benefit of the information is that it might prevent a bad decision. Absent the additional information, we previously demonstrated that the company would choose to invest and the investment may fail (indeed, with a probability of 50 percent). The additional information may reveal that the investment is certain to fail.¹² If that were known in advance, the company obviously would choose not to invest and its value would not fall by \$100. The decision maker would reason that the probability of the information revealing this bad news is 50 percent.¹³ As a result, the expected incremental benefit of the information is the savings of \$100 in lost value times the 50 percent probability that the value would be lost in the absence of the information, or \$50.

¹¹ See Richard Posner, *An Economic Approach to Legal Procedure and Judicial Administration*, 2 J. LEGAL STUD. 399 (1973).

¹² What about the potential that the information would reveal good news? Why didn't the decision maker take that into account? The answer is that the firm would have chosen to invest, even if it had remained ignorant of the good news. In essence, it would have presumed that the investment would succeed. Thus, this good news would not alter the decision maker's investment choice and so was irrelevant to the information cost-benefit tradeoff. It might have reduced the decision maker's anxiety level, but that anxiety reduction is not valued by the risk neutral decision maker we have assumed.

¹³ Assuming that the decision maker's initial view was that the investment would fail with a probability of 50% and assuming that the "bad" news is that the investment is certain to fail, it follows that ex ante the probability of "bad" news must be 50%.

in making the decision on the basis of investigation, the firm could gather information in order to reduce the risk of error. Information gathering also is an investment in gathering and processing itself, as well as the cost of gathering and using additional information versus the benefits.

Information, the benefit of additional information is the likelihood of making a costly decision to consider additional information between two types of costs—error costs on the one hand and the cost of gathering information on the other. A rational decision maker will choose the sum of the two types of costs.¹¹ This is the decision theoretic approach.

For example, suppose that the firm in the example above chooses to gather information by further costly investigation. Suppose that the firm has gathered information before making the decision. For the moment, the firm has not gathered the information. The benefit of the information is that the firm would choose to invest in the additional information, if the probability of 50 percent. If the investment is certain to pay off, the company obviously would not fall by \$100. The decision to gather information reveals the result, the expected incremental benefit of \$100 in lost value times the probability of the investment would be lost in the absence of the information.

Legal Procedure and Judicial Administration,

... would reveal good news? Why didn't the firm invest? The answer is that the firm would have chosen to invest in good news. In essence, it would have chosen to invest in good news. This good news would not alter the firm's anxiety level, but that anxiety reduction is what we have assumed.

... was that the investment would fail. "Bad" news is that the investment is lost. The probability of "bad" news must be 50%.

Put another way, this complete information eliminates the chance of an erroneous decision. This additional information has value because the expected error costs from investing on the basis of limited preliminary information are \$50, as calculated earlier. Thus, the expected incremental benefit of the information is the elimination of this \$50 expected error cost.¹⁴

Although this additional information has benefits, it also is costly. The rational decision maker will only gather additional information if the expected benefit of the information exceeds the cost of gathering the information. In this example, the expected benefit of gathering complete information is \$50. Therefore, it will pay to gather the additional information only if the cost of the additional information is less than the \$50 benefit.

3. What Type of Information to Gather and Consider

In the previous section, we assumed that the manager gathered all relevant information. The manager, however, may have a choice about what type of partial information to gather. In many situations, the imperfect information facing the decision maker can be divided into a series of distinct components. For example, the company could learn more about the upside potential (initially presumed to be an increase in value of \$150), the downside risk (initially presumed to be a reduction in value of \$100), or the probabilities (initially presumed to be 50 percent each). By gathering additional information on any one of these issues, the decision maker reduces the amount of uncertainty and risk the company faces. This possibility creates another choice for the manager: the sequence in which to gather and consider information about the distinct issues.

Gathering information sequentially is not always efficient. Even where the relevant facts are distinct, there may be economies of scope to gathering facts on multiple issues simultaneously. In other situations, the same facts simultaneously may improve the decision maker's knowledge about multiple issues. For example, in antitrust, consider information suggesting that a firm lacks market power. This information reduces the likelihood of anticompetitive harm. If it were assumed, however, that

¹⁴ This result can be explained in still another way. If the additional information is gathered, either the value of the firm will rise by \$150 (in the event that information reveals good news that induces the firm to invest) or it will stay the same (in the event that the information reveals bad news, leading the firm to forgo the investment). Thus, the value of the firm will increase in expected value terms by \$75 (i.e., 50% times \$150 gain). Absent the information, the expected increase in value is \$25. Thus, the incremental benefit of the information is the \$50 increase in expected value.

market power were a prerequisite for the firm to have specific intent to harm consumers, then evidence of a lack of market power might also be said to disprove specific intent.¹⁵ In other words, gathering information on market power also could provide the decision maker with some information regarding specific intent.

It sometimes may be more economical, however, for the manager to focus the inquiry first on a single issue (or a subset of all the issues) rather than learn more about all the issues simultaneously. This is because a decision to limit the information gathering to a single issue might be able to reduce the cost of information. The information gathered about the first issue may be dispositive—that is, it may enable a decision to be made without learning more.¹⁶ Thus, the potential to avoid the costs of learning more about additional issues provides a powerful motivation to gather information sequentially.¹⁷

When information on distinct issues is gathered sequentially, there is the question of which issue should be investigated first. The answer requires a comparison of the costs and benefits of the additional information. On the cost side, if additional information on one issue is less costly to gather, then it tends to be economical to learn about that issue first. On the benefit side, the decision maker first should consider those facts and issues that are more likely to determine the decision. After all, the rationale for learning about issues in sequence is that the costs of learning about other issues can be avoided. This, in turn, implies that the issue over which the decision maker faces more uncertainty and which carries more weight in the decision should be investigated first, assuming the costs of learning about two issues are the same. Thus, cost, uncertainty, and weight in the decision are the three key components in determining which issue to focus upon first.

The impact of information cost on the decision to gather information is straightforward: gather less costly information first. The benefit side of the analysis is somewhat more subtle. To focus on the benefit side, suppose that it costs the same to achieve "perfect" information about either the upside potential or the downside risk. Suppose, however, the degree of uncertainty differs. In particular, suppose the manager thinks

¹⁵ Some commentators would then argue that this implies that the intent of the conduct must be increased efficiency. See, e.g., Frank Easterbrook, *The Limits of Antitrust*, 63 TEX. L. REV. 1 (1984); see also *Rothery Storage and Van Co. v. Atlas Van Lines*, 792 F.2d 210 (1986).

¹⁶ See Landes, *supra* note 8.

¹⁷ *Id.*; see also C. Frederick Beckner & Steven C. Salop, *Issue Sequencing and Summary Disposition in an Efficient Legal Process*, Working Paper (Sept. 1995).

or the firm to have specific intent to a lack of market power might also. In other words, gathering information provide the decision maker with some information.

nical, however, for the manager to issue (or a subset of all the issues) issues simultaneously. This is because gathering to a single issue might be 1. The information gathered about it is, it may enable a decision to be the potential to avoid the costs of as provides a powerful motivation

is gathered sequentially, there is be investigated first. The answer benefits of the additional information on one issue is less costly ical to learn about that issue first. er first should consider those facts ermine the decision. After all, the quence is that the costs of learning is, in turn, implies that the issue ore uncertainty and which carries e investigated first, assuming the he same. Thus, cost, uncertainty, e key components in determining

ie decision to gather information formation first. The benefit side le. To focus on the benefit side, eve "perfect" information about iside risk. Suppose, however, the ilar, suppose the manager thinks

is implies that the intent of the conduct erbrook, *The Limits of Antitrust*, 63 TEX. Van Co. v. Atlas Van Lines, 792 F.2d

Salop, Issue Sequencing and Summary g Paper (Sept. 1995).

that the upside potential (with initial expectation of \$150) may be as low as \$140 or as high as \$160, whereas the downside risk (with initial expectation of \$100) could be as low as \$1 or as high as \$199. In this case, it would not make sense to investigate the upside potential first. If it were investigated first, the manager still would be unable to make a significantly better investment decision than before the information was gathered. This is because the manager does not face much uncertainty about the upside risk to begin with. In contrast, by learning the true value of the downside risk, more uncertainty is resolved and the manager might decide whether to pursue the investment without ever needing to learn more about the upside potential. For example, if the downside potential turned out to be in the neighborhood of the extremes, either near \$1 or near \$199, then the improved information on the upside would have no value because it would not affect the decision. Even if the cost of the information were small, it would only make sense for the manager to invest in learning the true value of the upside potential if the downside potential turned out to be in the \$140-160 range. Otherwise, it would make more sense to decide the case solely on the basis of this partial information about the downside and rely on the initial presumptions for the upside.¹⁸

B. JUDICIAL DECISION MAKING

How is this analysis applied to the situation facing a court? As a formal matter, there is an analytic analogy between the private decision maker and a court acting as a fact finder and decision maker. The court can hold for the plaintiff (e.g., the individual who claims that the investment is socially detrimental) or for the defendant (e.g., the individual who claims the investment is socially beneficial). The court, however, has imperfect information regarding the effect of the conduct. The court can make its decision based on presumption and preliminary information, or it can gather more information and make a decision on the basis of a more complete factual record. Of course, courts face a variety of other constraints, including the Federal Rules of Civil Procedure (which may not reflect efficient decision theory), a desire for an appearance of fairness, and concern about appellate review. The court also bears a relatively small fraction of the information gathering costs, the remainder being borne by the parties to the litigation.

Nonetheless, we believe decision theoretic approach is readily applied to courts as well as private decision makers. For example, suppose that

¹⁸ As a second example, in a non-financial context, suppose that key facts were the minimum viable scale (MVS) of entry and the time required for entry. If the fact finder

a group of competitors is defending some type of horizontal restraint that they propose to adopt.¹⁹ Extending the earlier numerical example (in a far more precise way than the issues typically are presented to a court), suppose the defendants claim that the restraint will lead to lower costs or a superior product and, as a result, will increase consumer welfare by \$150. In contrast, suppose the plaintiff (say, the government) claims that the conduct actually will decrease consumer welfare by \$100. Based on presumptions rooted in its experience and certain preliminary factual information presented to the court, suppose further that the court concludes that either one or the other party is absolutely correct (rather than the actual effect being somewhere between the two estimates), and that the likelihood that the defendants are correct and consumer welfare actually will rise by \$150 is 50 percent while the likelihood that the plaintiffs are correct and consumer welfare will fall by \$100 is 50 percent.

In this case, based solely on the limited information before the court, it would be rational for the court to find for the defendants and permit the proposed conduct. (We are assuming no "look back" provision, so the court's decision is final.) As calculated in the example of the private decision maker above, the expected consumer welfare benefit from allowing the proposed conduct is \$25.²⁰ Thus, the conduct is expected to be welfare enhancing. In error cost terms, the expected error cost from erroneously enjoining the conduct (false conviction) would be \$75, whereas the expected error cost from erroneously permitting the conduct (false acquittal) would be only \$50. Thus, a court interested in minimizing the expected consumer welfare costs of erroneous decisions (assuming that it had to make a decision on the present record) would permit the conduct to go forward.²¹

knows that the MVS is between 4.9% and 5.1%, whereas the time of entry could be as short as six months or as long as six years, the benefits of learning the latter fact are larger.

¹⁹ The analysis is somewhat simpler to describe if we act as if the court or government agency is evaluating *proposed* conduct, such as a proposed merger or joint venture subject to the Hart-Scott-Rodino premerger notification process. Where the issue is completed conduct, the focus would be on liability rather than injunction, but the decision theoretic analysis would be the same.

²⁰ This decision is optimal for a risk neutral court. It is possible that the court would be risk averse, weighing losses in consumer welfare more heavily than gains in consumer welfare. If so, that fact could be taken into account without changing the basic framework. Risk aversion will enter the information gathering decision in a more fundamental way, as discussed later.

²¹ As a practical matter, we are not saying that courts actually will (or even could) precisely calculate these probabilities. The court may do the weighing informally or intuitively. By working through the mathematics and assuming that this type of calculation is possible, however, we can gain a better understanding of the trade-offs and improve the intuition

ome type of horizontal restraint
g the earlier numerical example
ues typically are presented to a
at the restraint will lead to lower
result, will increase consumer
plaintiff (say, the government)
ease consumer welfare by \$100.
erience and certain preliminary
ourt, suppose further that the
other party is absolutely correct
newhere between the two esti-
e defendants are correct and
0 is 50 percent while the likeli-
consumer welfare will fall by

information before the court,
for the defendants and permit
no "look back" provision, so
in the example of the private
ner welfare benefit from allow-
he conduct is expected to be
he expected error cost from
conviction) would be \$75,
ously permitting the conduct
ourt interested in minimizing
roneous decisions (assuming
nt record) would permit the

reas the time of entry could be as
f learning the latter fact are larger.
act as if the court or government
ed merger or joint venture subject
ess. Where the issue is completed
nction, but the decision theoretic

t is possible that the court would
re heavily than gains in consumer
out changing the basic framework.
sion in a more fundamental way,

ually will (or even could) precisely
ghing informally or intuitively. By
is type of calculation is possible,
ie-offs and improve the intuition

What about rational information gathering? A court, of course, usually is not required, or sometimes allowed, to make a decision without gathering further information. In principle, however, the court could make its decision on the basis of its initial presumptions and information, or the court could permit further proceedings, such as discovery, additional filings, or trial to gather more evidence to inform its decision. It is efficient to have further proceedings if they are not too costly. In making this decision, the court could try to minimize the sum of error costs plus the legal process costs borne by all the parties affected by the litigation, including the court itself.²² Similarly, the court can control the sequence in which information is gathered and seek to resolve first those issues that are potentially dispositive of the entire case.

There are, however, two significant differences between the private decision maker and the court regarding information gathering. First, in contrast to private decision makers, courts also have concerns about optimal deterrence. That is because a decision by a court will not only bind the litigation parties, but will also serve as precedent by which future conduct will be judged. In antitrust, for example, over-deterrence might involve deterring welfare enhancing cooperation or innovations by firms that fear a finding of liability even when their conduct does not reduce consumer welfare. Under-deterrence might involve firms being overly aggressive in the expectation that their conduct may escape punishment. Concerns about optimal deterrence may lead courts to shade the standard in one or the other direction to take into account differences in the cost of false convictions versus false acquittals.²³

Second, in the judicial context, information gathering focuses not only on the physical collection of information, but also the processing and consideration of that information to determine its relevance to the applicable legal standard. The private decision maker collects (and processes) its own information, while in the United States it is usually the case in both the regulatory and judicial contexts that the litigants collect the relevant information and present that information to the courts. The court then considers the information presented by the litigants to reach its decision.²⁴

of even innumeric courts. Judge Posner sets out a far more elegant statement on this point in *American Hospital Supply Corp. v. Hospital Products Ltd.*, 780 F.2d 589 (7th Cir. 1986).

²² See Posner, *supra* note 11; Issac Ehrlich & Richard Posner, *An Economic Analysis of Legal Rule Making*, 3 J. LEGAL STUD. 257 (1974).

²³ For a detailed analysis of this point, see Richard Craswell & John Calfee, *Deterrence and Uncertain Legal Standards*, 2 J.L., ECON. & ORG. 279 (1986).

²⁴ In an inquisitorial system, by contrast, courts play a much more active role in gathering information. Regulatory commissions with litigation staff also do not need to depend totally upon private parties to gather information.

Courts have two distinct options with regard to efficient information gathering. The court can allow the parties to conduct discovery on *all* potentially relevant issues and then present that evidence to the court. The court, in rendering its decision, can then evaluate and process that information in the most efficient sequence. For example, the court could decide a case challenging a horizontal price agreement solely on the basis of the information presented regarding market power, even though the litigants also had supplied the court with information regarding alleged efficiencies from the agreement.²⁵ In this context, our decision theoretic approach would not be relevant to the actual collecting of the information, but instead would be relevant to the way in which the court analyzes and processes the information.²⁶

In the alternative, the court can actively manage what information the litigants collect and the sequence in which that information is presented to the court, as well as the manner in which the court processes that information. For example, take the situation just mentioned where the litigants submitted evidence on both market power and efficiency issues but where the court made its decision solely on the basis of the former, ignoring the latter. Given the potential for the market power issue to be dispositive, the court could have reduced information gathering costs by ordering the parties initially to present evidence solely on that issue.

Such an approach, of course, would shift to the courts some of the costs of information gathering presently borne by private litigants. This is because the judge would need to take a more active role in managing discovery and the way in which the issues are presented at trial. Nonetheless, we believe such a shift in costs may be worthwhile because, given the substantial costs of discovery, the decision theoretic approach described below provides the potential for realizing substantial savings over the current regime. Indeed, given the strategic incentives of litigants, courts are the only entities that realistically can be expected to manage information gathering efficiently. The foregoing discussion assumes, of course, that courts follow this approach, recognizing that if they do not, the impact of our analysis is limited to the manner in which courts process and consider the information already collected and presented by litigants.²⁷

²⁵ This potentially would save the court the time of trying to understand and evaluate the magnitude of the claimed efficiency benefits.

²⁶ Conceptualized this way, our analysis applies to the court's legal reasoning and opinion writing.

²⁷ In the analysis so far, we have assumed that the decision maker—whether private firm or court—is risk neutral. A risk neutral decision maker grades alternatives solely in terms of their expected values. That is, a risk neutral decision maker weighs potential harms equally with potential benefits. In contrast, a risk averse decision maker would place more

tl
ir
m
th
le:
de
pr
ou

pro
we
H)
the
imp
effe
from
from
harr
impa

We
on th

weight
higher
judicia
irrelev
quantit
potenti

In re
decision
may be
choose
because
not only
future c
of cases
to help
the legal
solely on
be reduc
the legali
on the ba
over- or
The deter
informati
²⁸ See Be
this multi-

h regard to efficient information
rties to conduct discovery on *all*
esent that evidence to the court.
n then evaluate and process that
ce. For example, the court could
l price agreement solely on the
rding market power, even though
urt with information regarding
t.²⁵ In this context, our decision
nt to the actual collecting of the
ant to the way in which the court

²⁶

ly manage what information the
ch that information is presented
which the court processes that
ation just mentioned where the
rket power and efficiency issues
sely on the basis of the former,
for the market power issue to
ced information gathering costs
nt evidence solely on that issue.

shift to the courts some of the
borne by private litigants. This
a more active role in managing
are presented at trial. Nonethe-
e worthwhile because, given the
a theoretic approach described
g substantial savings over the
ic incentives of litigants, courts
e expected to manage informa-
discussion assumes, of course,
izing that if they do not, the
anner in which courts process
llected and presented by liti-

of trying to understand and evaluate

the court's legal reasoning and opin-

ecision maker—whether private firm
er grades alternatives solely in terms
ision maker weighs potential harms
se decision maker would place more

C. THE MULTI-STAGE DECISION PROCESS

In this section, we summarize a formal multi-stage decision process that synthesizes and generalizes this decision theoretic analysis.²⁸ The multi-stage decision process incorporates a role for presumption, information gathering, and information costs. It takes into account the fact that information is costly to gather and that imperfect information may lead to erroneous judicial determinations. It also takes into account decisions regarding both the magnitude of information costs and the priority for gathering information on various issues germane to the outcome.

To be concrete, consider a hypothetical horizontal price restraint problem. There are two competitive issues, consumer benefits (which we denote as Issue B) and consumer harms (which we denote as Issue H) that may result from the restraint. By consumer benefits, we mean the benefits that would occur in the absence of any offsetting adverse impact from market power. By consumer harms, we mean the adverse effects that would occur in the absence of any offsetting positive impact from efficiencies. As a general matter, the net consumer welfare effect from the conduct depends on the consumer benefits and consumer harms. In mathematical terms, one can think of net consumer welfare impact as benefits B less harms H.

We assume *a priori* that the court has some limited initial information on the likelihood and magnitude of benefits and harms from the con-

weight on harms. A more risk averse decision maker would even reject conduct with a higher expected value in light of the significant downside risk. Even if the (private or judicial) decision maker is risk averse, that does not render this decision theoretic analysis irrelevant. Risk averse decision makers still will make their decisions on the basis of these quantities; they will simply go beyond merely expected values and give the downside potential additional weight in their decisions.

In rendering judicial decisions, it may be appropriate for courts to behave as risk averse decision makers for three reasons. First, the members of society affected by these decisions may be risk averse. The court effectively acts as an agent for these people and so should choose as they would, taking into account its ability to diversify independent risks. Second, because court opinions usually are given precedential effect, a court must be concerned not only with minimizing the error costs in the particular case before it, but also with future cases. Thus, to the extent that the court's decision today will influence the resolution of cases tomorrow, it has an incentive to gather as much information as it can in order to help ensure that those future cases are properly decided. In this way, the efficiency of the legal process is improved. Third, and relatedly, when a court makes a decision based solely on imperfect, preliminary information, the deterrence benefits of that ruling may be reduced somewhat. Potential violators are denied the more detailed information about the legality of conduct that might be revealed if the court made and justified its decision on the basis of more complete information. As a result, potential violators may either be over- or under-deterred in their future conduct. *See* Craswell & Calfee, *supra* note 23. The deterrence process might be improved if the potential violators had more precise information about the ultimate merits standards the court will apply.

²⁸ *See* Beckner & Salop, *supra* note 17, for a preliminary, formal mathematical model of this multi-stage decision process. That paper builds on Landes, *supra* note 8.

duct. This prior information represents preliminary presumptions that the court holds about the two issues for the entire class of similar restraints before gathering additional case-specific information. We refer to this as the initial characterization of the case. In principle, the court could make a decision solely on the basis of its initial characterization. Alternatively, at a cost, the court can gather additional case-specific information on one or both issues, B and H, and make a decision on the basis of this additional information.²⁹

If the court decides to gather and consider additional information, it is better to gather information efficiently. The court first should gather information that is least expensive, resolves the most uncertainty, and is most likely to affect its decision. This might involve discovering limited, low-cost information on the key issues. It also might involve choosing to get more complete, higher-cost information on one or more of the issues. Each of the information-gathering decisions is made sequentially, one step at a time. At each step, the court must decide whether to render a decision (for either party) on the basis of its partial information or to gather additional information.

In terms of the private investment example presented earlier, we generalize the manager's alternatives to include gathering additional, but limited, information on both upside potential and downside risk. The manager also may gather additional, more complete information on one of the issues, even while relying on presumptions and preliminary information on the other issues. In this regard, if the manager decides to invest in more complete information, the manager should consider gathering that information sequentially, one issue at a time, rather than on both issues simultaneously. The optimal choice of initial issue to consider will depend on the information costs and benefits as discussed above. Moreover, having gathered and considered information on one issue, the manager may choose to make the investment decision on the sole basis of information learned about the first issue, rather than bearing the cost of learning about the other issue. As we show, often it is optimal to decide whether or not to gather information on the second issue based on the actual outcome of the investigation of the first issue, rather than deciding in advance whether or not to gather information on the second issue.

²⁹ The Supreme Court has expressly recognized the role that a priori presumptions play in the antitrust context. A restraint of trade may be found unlawful "based either (1) on the nature or character of the contracts, or (2) on surrounding circumstances giving rise to the inference or presumption that they were intended to restrain trade and enhance prices." *National Soc'y of Prof'l Eng'rs v. United States*, 434 U.S. 679, 690 (1978).

its preliminary presumptions that
as for the entire class of similar
case-specific information. We refer
of the case. In principle, the court
asis of its initial characterization.
n gather additional case-specific
and H, and make a decision on
n 29

consider additional information, it is not sequential. The court first should gather information that resolves the most uncertainty, and this might involve discovering limited, but valuable, information. It also might involve choosing the order of information on one or more of the issues. If a decision is made sequentially, the court must decide whether to render a decision based on its partial information or to

example presented earlier, we include gathering additional, the potential and downside risk. If, with more complete information, the manager decides to proceed, the presumptions and preliminary information regard, if the manager decides to proceed, the manager should consider one issue at a time, rather than making a global choice of initial issue to investigate. The costs and benefits as discussed in the preceding considered information on one issue at a time. The investment decision on the first issue, rather than bearing the cost of gathering information on the second issue. As we show, often it is optimal to gather information on the first issue, rather than bearing the cost of gathering information on the second issue.

role that a priori presumptions play in finding unlawful "based either (1) on surrounding circumstances giving rise to a presumption of restraint of trade, or (2) on evidence tending to show that the defendant intended to restrain trade and enhance its profits, 434 U.S. 679, 690 (1978).

1. The Steps of the Multi-Stage Decision Process

Given this basic formulation, a court must make a number of decisions and determinations in a particular case. We denote these as the seven stages of the optimal decision process. Some of these stages are purely information-gathering stages, others are purely decision stages, and still others involve both information gathering and decisions.

These stages are summarized by the decision tree set out in Figure 1. The decision tree illustrates the alternative possible decisions that the court could take at each stage of the process. To clarify the procedure, the pure information stages are identified with squares (■), the pure decision stages are identified with triangles (▲) and the mixed information-decision stages are identified with circles (●). For example, Stage 1 is an informational stage, in which the court gathers information. In contrast, Stage 2 is a decision stage. At Stage 2, the court could choose to rule for either the defendant or the plaintiff, or it could choose not to rule for either and instead move on to Stage 3 where it would gather additional information on benefits (B) and harms (H). These stages are discussed in detail below.

We assume that the court initially holds uncertain but unbiased a priori presumptions about expected benefits and harms, formed at the characterization stage. In simplest form, we assume that the court

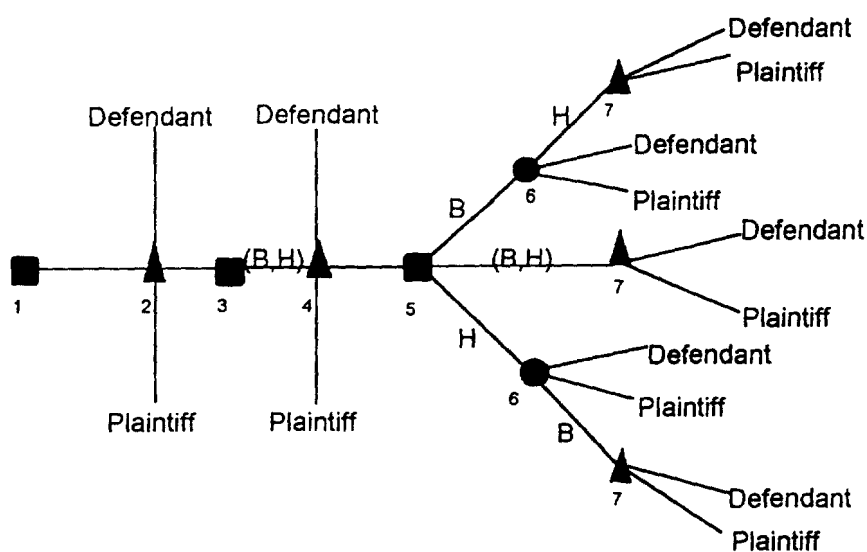


Figure 1

holds some general presumptions about the expected levels of benefits and harms in particular cases within the class of activities under consideration. We assume that more precise case-specific information on the various issues is costly to gather. We further assume that the court can make a decision solely on the basis of the information it has at the characterization stage or at any later step along the way, based on whatever partial information has been gathered up to that point. The court moves along the decision tree sequentially from Stage 1 through Stage 7, potentially terminating the process with a final decision at any of the decision stages along the way.

At each stage, the decision maker accounts for potential outcomes of the later stages in an optimal fashion. In order to think through the optimal procedure, the analyst conceptually uses the technique of "backward induction." With this technique, the analyst thinks through the final decision made in Stage 7 and moves in reverse order back through the potential decisions at earlier stages.³⁰ In this way, the court ensures that when it proceeds forward through the process, its decisions at each stage will be made in anticipation of later optimal decisions it will make (or will not make).

The rationale for this multi-stage procedure follows directly from the decision theoretic analysis discussed earlier. The court begins with presumptions and initial preliminary information summarized at the initial characterization stage. The court can rule for either the plaintiff or the defendant. In an injunction case, a finding for the plaintiff would correspond with prohibiting the conduct, while a finding for the defendant would correspond with permitting the conduct.

At each stage, the court must decide whether to make a decision based on the limited information it has so far or to gather additional information. The court makes this information decision based on the costs and benefits of obtaining additional information. At each stage, the court also must choose what type of information to gather, that is, the sequence in which it addresses the relevant issues.

With this background, we can proceed through the steps of the process in somewhat more detail.

(1) *Initial Characterization* (■). At this information stage, the court forms its initial presumptions about the matter. This process includes determination of the relevant class of cases and issues, the antitrust welfare standard, and the cost of gathering case-specific information.

³⁰ AVINASH DIXIT & BARRY NALEBUFF, THINKING STRATEGICALLY: THE COMPETITIVE EDGE IN BUSINESS, POLITICS, AND EVERYDAY LIFE 37-44 (1991).

at the expected levels of benefits class of activities under consideration. The court could use case-specific information on the other to assume that the court can use the information it has at the point along the way, based on what has been learned up to that point. The court could then make a final decision at any of the

points for potential outcomes of the case. In order to think through the case, the court uses the technique of "backwards" analysis. The analyst thinks through the case in reverse order back through the stages. In this way, the court ensures that its decisions at each stage are optimal decisions it will make

the procedure follows directly from the theory. The court begins with preliminary characterization summarized at the initial stage. The court then decides whether to make a decision for either the plaintiff or the defendant. A finding for the plaintiff would lead to a decision for the plaintiff, while a finding for the defendant would lead to a decision for the defendant.

Whether to make a decision or to gather additional information is a decision based on the information available at each stage. At each stage, the court decides whether to gather information, that is, whether to gather relevant information.

Through the steps of the process

At the information stage, the court decides whether to gather information. This process includes gathering information on the issues and the antitrust issues, the antitrust issues, and case-specific information.

The initial characterization could be based on both case-specific as well as general information and experience about a larger class of cases.

(2) *Summary Disposition Based on the Initial Characterization* (▲). This is the first potential decision stage. At this stage, the court could decide the case (in principle, for either side) on the basis of the initial characterization. Alternatively, the court could decide to gather more information by requiring or allowing the parties to present more information, as set out in the next stage. At this stage, a decision for the plaintiff might be referred to as *per se* illegality and a decision for the defendant might be referred to as *per se* legality. Motions to dismiss also might be viewed as attempts to dispose of the case at this stage.³¹

(3) *Recharacterization* (■). At this information stage, the court may gather additional, low-cost information about consumer harms, benefits, or both in order to update and refine the initial characterization. The recharacterization also includes certain preliminary case-specific information. In some cases, the court may decide to skip this stage (and its companion decision Stage 4), depending on the expected costs and benefits of the information that might be collected at this stage.

(4) *Summary Disposition Based on the Stage 3 Recharacterization* (▲). This decision stage is parallel to the previous summary disposition stage. Certain quick look standards correspond to decisions at this stage.³² At this stage, the court could decide the case (for either side) on the basis of the additional, but still preliminary information collected at Stage 3. Alternatively, the court could decide to gather more complete information on one of the issues, as set out in the next stage.

(5) *Sequencing and More Complete Information Gathering on First Issue* (■). At this information stage, the court decides upon which of the issues to gather more complete information first. The court then gathers the information on that first issue. This process corresponds to the choice of various "filters" in truncated rule of reason standards.³³

As indicated in the decision tree, under certain circumstances—for example, where there are economies of scope in gathering information on two issues—the court may decide to gather information on both issues simultaneously at this stage. If so, the process skips Stage 6 and moves directly to the full merits determination in Stage 7, which corresponds to the classical rule of reason.

³¹ See *infra* Parts III.B and III.C.

³² See *infra* Part III.D.

³³ See *id.*

(6) *Subsequent Summary Disposition Based on Partial Information or More Complete Information Gathering on Second Issue* (●). This is a joint information and decision stage. Assuming that this stage is not skipped, then the court, having gathered information on the first issue, must decide whether to stop and dispose of the case summarily (for plaintiff or defendant) on the basis of that partial information, or go on and gather more complete, case-specific information on the second issue and proceed to a full merits determination. Certain quick look and truncated rule of reason standards involve decisions at this stage.³⁴

(7) *Full Merits Determination* (▲). This is the final decision stage. Having gathered information on both issues, the court decides on the basis of the fuller set of information. Of course, even in this case, the court still lacks perfect information. This corresponds to a decision under the classic rule of reason.

2. Further Properties of the Multi-Stage Decision Process

In this section, we discuss some further properties and aspects of the multi-stage approach and its application to antitrust.

a. The informational basis for the initial characterization

In principle, the initial characterization of the case could be based on preliminary case-specific information as well as the court's knowledge and experience with a larger class of similar cases (e.g., all horizontal price restraints cases, all nonprice vertical restraints). In order to make the process more predictable for the parties and for courts, it might be prudent to use the same standard for all cases in a particular class. This avoids the potential for front loading all the costly fact gathering at this initial stage, and carrying out a full merits determination at what should be a preliminary characterization stage.

At the same time, easily obtainable case-specific information can be incorporated through the recharacterization process at Stage 3. It is important, of course, to avoid the same front-loading temptation here. Stage 3 should include only information that can be gathered *and evaluated* by the court at low cost. This probably means that it would include only information that cannot be controverted very easily by one of the litigants. It probably would not include quantitative evidence submitted by economic experts.

b. The timing of the judicial selection of the decision process

This multi-stage decision process is a useful way to organize the information gathering exercise in order to avoid unnecessary information

³⁴ See *id.*

Based on Partial Information or More than One Issue (●). This is a joint information-gathering stage. If at this stage is not skipped, then the court must decide on the first issue, must decide the case summarily (for plaintiff or defendant) or go on and gather information on the second issue and provide a quick look and truncated decision at this stage.³⁴

is the final decision stage. Having decided on the basis of the evidence, even in this case, the court still responds to a decision under the

Multi-Stage Decision Process

properties and aspects of the case relevant to antitrust.

the initial characterization

on of the case could be based on the court's knowledge of similar cases (e.g., all horizontal restraints). In order to make the decision for courts, it might be necessary to consider cases in a particular class. This is the costly fact gathering at this stage and determination at what should

case-specific information can be gathered in the decision process at Stage 3. It is a front-loading temptation here. What can be gathered *and evaluated* means that it would include information gathered very easily by one of the parties to the antitrust evidence submitted

of the decision process

ful way to organize the information to avoid unnecessary information

that is costly to collect and evaluate. In this process, courts select the legal standard early on in the proceeding and then restrict discovery only to certain relevant issues. If the evidence leads to the need to gather information on the other issues, only then would additional discovery take place. Similarly, in the context of a trial, the court would decide whether evidence on a particular issue is irrelevant *before* the evidence is presented, not after.

Despite these advantages, truly sequential information gathering by courts using the various quick look rules actually has been relatively rare. Rather, courts more often perform sequential information consideration and evaluation only after the information already has been collected. For example, in *NCAA* the Supreme Court applied the quick look standard even though it could have relied on the entire record that had been generated. Of course, the Court likely was sending a signal to lower courts regarding the type of analysis it preferred for future cases. The signal, however, apparently has not been fully received. As in *NCAA*, courts hearing subsequent cases often conduct all the information gathering necessary for a full merits determination and then apply a summary rule anyway. For instance, in the district court proceeding in *Brown University*,³⁵ the court decided to apply the truncated rule of reason, ignoring evidence of market definition and market power, but only after requiring the parties to collect such evidence and present it at trial. Similarly, in *Cal. Dental*³⁶ the FTC staff apparently litigated the case under the rule of reason, but the Commission decided parts of the case on the basis of a *per se* rule and parts on the basis of the quick look rule. In both instances it would have made more sense if the standard had been determined before the information was gathered.

c. Two- versus three-branched decision trees

One key difference between the full multi-stage decision tree and standard antitrust rules involves the range of possible outcomes at the intermediate decision points at Stages 2, 4, and 6 (which we discuss in more detail below). Referring to the decision tree, the decision maker at each of these stages may (1) permit the conduct, (2) prohibit the conduct, or (3) gather more information. A three-branched approach is perhaps the more rational decision pattern. It is only when the first issue falls in the middle range that the second issue becomes relevant. This, however, is not the typical pattern in antitrust. In most standard antitrust rules, the court's range of possible choices is limited to only

³⁵ *United States v. Brown Univ.*, 805 F. Supp. 288 (E.D. Pa. 1992), *rev'd*, 5 F.3d 658 (3d Cir. 1993).

³⁶ *California Dental Ass'n*, 5 Trade Reg. Rep. (CCH) ¶ 24,007, at 23,787-797 (1996).

two of these branches—either gather more information or decide in one pre-specified direction. For example, in the horizontal price restraint area just discussed, it is never true that the efficiency benefits are found to be so large that the case is disposed of without any evaluation of the likelihood of market power harms or balancing.³⁷ Similarly, in the case of unilateral nonprice vertical restraints, even if market power harms are found to be quite high (e.g., monopoly power), antitrust doctrine generally does not deny the monopolist's ability to raise efficiency rationales.³⁸

A notable exception to this two-branch breakdown is Professor (now FTC Chairman) Robert Pitofsky's initial merger efficiencies proposal.³⁹ In his article on merger efficiencies, Professor Pitofsky proposed that efficiency benefits only be evaluated for mergers in moderately concentrated markets. This approach would be consistent with a view that (i) it is costly and difficult to measure efficiencies, and (ii) the range of likely efficiencies is such that they almost surely would outweigh market power harms in unconcentrated markets and almost surely would be outweighed by market power harms in highly concentrated markets. Thus, Pitofsky's proposal followed the three-branched approach set out in the multi-stage decision tree. Consumer harm from market power is evaluated first. If market power harm is highly unlikely (say, as measured by an HHI⁴⁰ in the "safe harbor"), the merger is permitted without any need to analyze efficiencies. If market power harm is highly probable (as measured by a "highly concentrated" HHI), the merger is condemned, similarly without any need (or standing) to analyze efficiencies.⁴¹ Only in the case in which market power harm is found to be moderate did

³⁷ *Broadcast Music, Inc. v. CBS, Inc.*, 441 U.S. 1, 19–20 (1979).

³⁸ See *Continental T.V., Inc. v. GTE Sylvania Inc.*, 433 U.S. 36, 49–50 (1977) (requiring "the fact finder [to] weigh[] all the circumstances of a case in deciding whether a particular practice should be prohibited" (emphasis added)); cf. *Jefferson Parish Hosp. Dist. No. 2 v. Hyde*, 466 U.S. 2, 9 (1984) ("Certain types of contractual arrangements are deemed unreasonable as a matter of law. The character of the restraint produced by such arrangement is considered sufficient basis for presuming unreasonableness without the necessity of any analysis of the market context in which the agreement may be found.").

³⁹ Robert Pitofsky, *Proposal for Revised United States Merger Enforcement in a Global Economy*, 81 GEO. L. REV. 195 (1992).

⁴⁰ HHI stands for the Herfindahl-Hirshman Index, as defined in U.S. Department of Justice and Federal Trade Commission Horizontal Merger Guidelines (1992), reprinted in 4 Trade Reg. Rep. (CCH) ¶ 13,104 [Merger Guidelines].

⁴¹ In a litigation context, if market power harms are low, the plaintiff would not be permitted to introduce evidence that efficiency benefits are nonexistent or negative. If market power harms are high, the defendant would not be permitted to introduce evidence that efficiency benefits are so large that the merger should be allowed. Note that we are not advocating or agreeing with Pitofsky's apparent equation of market power with the

more information or decide in the horizontal price restraint the efficiency benefits are found of without any evaluation of the balancing.³⁷ Similarly, in the case ts, even if market power harms (poly power), antitrust doctrine's ability to raise efficiency ratio-

ch breakdown is Professor (now l merger efficiencies proposal.³⁹ Professor Pitofsky proposed that mergers in moderately concen- e consistent with a view that (i) efficiencies, and (ii) the range of t surely would outweigh market ts and almost surely would be highly concentrated markets. ree-branched approach set out er harm from market power is ighly unlikely (say, as measured erger is permitted without any wer harm is highly probable (as II), the merger is condemned, to analyze efficiencies.⁴¹ Only i is found to be moderate did

19-20 (1979).

433 U.S. 36, 49-50 (1977) (requiring a case in deciding whether a particular cf. *Jefferson Parish Hosp. Dist. No. 2* contractual arrangements are deemed e restraint produced by such arrange- reasonableness without the necessity agreement may be found.").

Merger Enforcement in a Global Economy,

x, as defined in U.S. Department of merger Guidelines (1992), *reprinted in* nes].

are low, the plaintiff would not be efits are nonexistent or negative. If ot be permitted to introduce evidence should be allowed. Note that we are equation of market power with the

Pitofsky say that it is necessary to gather additional information to evaluate efficiencies.

III. IMPLICATIONS FOR ANTITRUST LEGAL PROCESS

We now apply this basic decision theoretic framework to antitrust legal process more systematically. As set out below, decision theory provides a powerful tool for understanding and explaining many of the current antitrust legal standards and for improving how these standards are implemented by courts.

A. STANDARD OF PROOF

Antitrust and many other areas of civil law apply a standard of proof based on "preponderance of the evidence." This standard typically is satisfied when the conduct is "more likely than not" to lead to a particular result, or a likelihood in excess of 50 percent.⁴² In contrast, the decision theoretic approach set out here would *not* apply this standard across the board. Instead, it would base decisions on expected error cost, not just the likelihood of prevailing.

To illustrate this point, consider an antitrust case in which the plaintiff claims that the defendants' horizontal restraint will reduce consumer welfare by \$100⁴³ and the defendants claim that their conduct will increase consumer welfare by \$150. Suppose that the court concludes that the likelihood that the plaintiff is right is 55 percent. Associating preponderance of the evidence with a 51 percent likelihood, the court will find for the plaintiff.

A court applying our decision theoretic approach would reach a different conclusion. According to this framework, a court should choose the action that minimizes the expected cost of error.⁴⁴ That action may or may not satisfy the 51 percent preponderance of the evidence standard. More generally, the standard depends crucially on the magnitudes of

HHI. Instead, we are showing how Pitofsky's proposal could be efficient under that assumed equation.

⁴² See *United States v. Shonubi*, 895 F. Supp. 460, 471 (E.D.N.Y. 1995), *vacated on other grounds*, 103 F.3d 1085 (2d Cir. 1997) ("[T]here is a consensus among judges that burden of proof can be stated in numerical terms."); *Pietrantonio v. United States*, 827 F. Supp. 458, 462 (W.D. Mich. 1993); *United States v. Fatico*, 458 F. Supp. 388, 410 (E.D.N.Y. 1978), *aff'd*, 603 F.2d 1053 (2d Cir. 1979).

⁴³ We emphasize that the relevant inquiry for our purposes is the consumer harm that purportedly will be caused by the defendants' exercise of market power (i.e., market power harm), and not simply market definition or market concentration.

⁴⁴ See, e.g., Kaplan, *supra* note 5; *American Hosp. Supply Corp. v. Hospital Prods. Ltd.*, 780 F.2d 589 (7th Cir. 1986).

potential benefits and harms, not simply the likelihood of benefit or harm. Both these components enter into an evaluation of expected net benefits and expected error costs. As a result, this approach in some cases could lead the court to adopt counterintuitive standards—finding for the plaintiff even if it believes the likelihood of the plaintiff being correct falls short of 50 percent or finding for the defendants even when it believes the plaintiff's likelihood of being correct greatly exceeds 50 percent. Taking the example above, the plaintiff would not prevail because the expected error cost is reduced by finding for the defendants. For example, at a probability of harm of 55 percent, the expected error cost of permitting the conduct is \$55 (i.e., \$100 times 55 percent), whereas the expected error costs of enjoining the conduct is \$67.50 (i.e., \$150 times 45 percent). At 60 percent, the expected error costs equal 60 for either decision (i.e., \$100 times 60 percent, or 150 times 40 percent). Thus, the plaintiff would prevail only if the likelihood that the defendants are correct exceeds 60 percent. (We assume that the defendants prevail in the case of ties.)

B. RULE OF REASON VERSUS PER SE ILLEGALITY

The decision theoretic analysis can be applied to the choice between the per se rule of illegality and the rule of reason. In terms of the formal multi-stage decision model, per se illegality would be described as deciding to prohibit the conduct at Stage 2, where the decision is based solely on the basis of the preliminary information gathered initially plus presumptions. This decision process typically applies to horizontal price restraints where there is an unrebutted presentation of no efficiency benefit. A restraint also could be prohibited at Stage 4 after gathering certain preliminary, low-cost, case-specific information. By contrast, the standard rule of reason would involve skipping all intermediate steps, gathering complete information simultaneously on both efficiency benefits and market power harms, and then rendering a decision on the merits at Stage 7.

The rationale for the per se rule against price fixing has been stated in terms that sound basically decision theoretic—namely, a balance between the likelihood of accuracy and the additional cost of further analysis. For example, in *Jefferson Parish* the Court opined:

[T]he rationale for *per se* rules in part is to avoid a burdensome inquiry into actual market conditions in situations where the likelihood of anticompetitive conduct is so great as to render unjustified the costs

ply the likelihood of benefit or into an evaluation of expected net result, this approach in some counterintuitive standards—finding the likelihood of the plaintiff being wrong for the defendants even when being correct greatly exceeds 50 percent, the plaintiff would not prevail by finding for the defendants. If the likelihood is 55 percent, the expected error cost is \$55 (i.e., \$100 times 55 percent), and the expected error costs equal \$67.50 (i.e., \$100 times 67.5 percent), or 150 times 45 percent. (We assume that the

PER SE ILLEGALITY

is applied to the choice between rule of reason. In terms of the per se illegality would be described at Stage 2, where the decision is based on information gathered initially. It typically applies to horizontal agreements. The presentation of no efficiency is made at Stage 4 after gathering all information. By contrast, the rule of reason requires sifting all intermediate steps, and is based on both efficiency benefits and costs. Rendering a decision on the

price fixing has been stated in the rule—namely, a balance between the potential cost of further analysis. The rule is applied:

to avoid a burdensome inquiry where the likelihood of finding that the costs of determining whether the particular case at bar involves anticompetitive conduct.⁴⁵

of determining whether the particular case at bar involves anticompetitive conduct.⁴⁵

And in *Sylvania* the Court expressly recognized that strict application of the per se rule will sometimes result in incorrect rulings, while the administrative benefits of the per se rule outweigh the costs of such incorrect determinations.

Per se rules thus require the Court to make broad generalizations about the social utility of particular commercial practices. The probability that anti-competitive consequences will result from a practice and the severity of those consequences must be balanced against its procompetitive consequences. Cases that do not fit the generalization may arise but a per se rule reflects the judgment that such cases are not sufficiently common or important to justify the time and expense necessary to identify them.⁴⁶

The Supreme Court's rationale for per se rules can be explained in the terms of the analysis presented here. In the decision theoretic approach, the per se rule is appropriate when two conditions are satisfied. First, on the basis of the presumptions and the preliminary information gathered by the court, the alleged anticompetitive conduct leads to an expectation of net consumer harm on an expected value basis. Second, in light of the costs and benefits of gathering and considering additional information, it is more economical to make a decision on the basis of the current limited information rather than bear the cost of improving the accuracy of the decision by gathering and considering more information. That is, the costs of the additional information exceed the expected benefits.

For example, consider the case of a naked price-fixing case such as *Trenton Potteries*⁴⁷ or *Socony Vacuum*,⁴⁸ in which the defendants do not

⁴⁵ *Jefferson Parish*, 466 U.S. at 16 n.25. See also *NCAA v. Board of Regents*, 468 U.S. 85, 103 (1984) ("Per se rules are invoked when surrounding circumstances make the likelihood of anticompetitive conduct so great as to render unjustified further examination of the challenged conduct" (emphasis added)).

⁴⁶ *Continental T.V., Inc. v. GTE Sylvania Inc.*, 433 U.S. 36, 50 (1977). Justice Marshall made this same point in his dissent in *United States v. Container Corp. of America*, 393 U.S. 333, 341 (1969) (Marshall, J., dissenting):

Per se rules always contain a degree of arbitrariness. They are justified on the assumption that the gains from imposition of the rule will far outweigh the losses and that the significant administrative advantages will result. In other words, the potential competitive harms plus the administrative costs of determining in what particular situations the practice may be harmful must outweigh the benefits that may result. If the potential benefits in the aggregate are outweighed to this degree, then they are simply not worth identifying in individual cases.

⁴⁷ *United States v. Trenton Potteries Co.*, 237 U.S. 392 (1927).

⁴⁸ *United States v. Socony-Vacuum Oil Co.*, 310 U.S. 150 (1940).

claim significant efficiency benefits from the conduct. Instead, suppose the defendants simply agree that the jointly fixed price is "reasonable" and unlikely to harm consumers because the defendants lack market power and likely could not have raised prices above the competitive level. The decision theoretic approach provides ample justification for applying the per se rule in this context.

On the basis of the presumptions about the general likelihood of harm from price fixing and the lack of consumer benefit justifications,⁴⁹ it can be presumed that if the court were required to make a decision based solely on this initial information, it would make sense to enjoin the conduct, even though that decision sometimes would turn out to be erroneous in particular cases. This is because it can be presumed that the likelihood of significant efficiency benefits is low and experience teaches that there is a significant likelihood of harm, at least for a transitory period.

Moreover, it can be presumed that the cost of gathering further information likely exceeds the expected benefits.⁵⁰ The cost of gathering information might be presumed to be high because market power often is costly and difficult to measure.⁵¹ Information gathering also will be a costly ongoing process because a reasonable price today can become an unreasonable price tomorrow. It can be further presumed that the information is unlikely to eliminate all errors, because, unlike public utility commissions, courts are not well suited to evaluate whether prices are "reasonable." Finally, the benefits of gathering this information can be presumed to be low because it is unlikely that such naked price fixing will result in significant benefits.⁵² Thus, according to the decision theoretic view, it does not make sense to allow this costly additional information to be introduced into the decision process even though to do so might slightly reduce the incidence of judicial errors. As a result,

⁴⁹ *FTC v. Superior Ct. Trial Lawyers Ass'n*, 493 U.S. 411, 423 (1990) (per se rule against price fixing justified because "Sherman Act reflects legislative judgment that ultimately competition will produce not only lower prices, but also better goods and services") (quoting *National Soc'y of Prof'l Eng'rs v. United States*, 435 U.S. 671, 695 (1978)).

⁵⁰ See Warren Schwartz, *An Overview of the Economics of Antitrust Enforcement*, 68 GEO. L.J. 1075 (1980).

⁵¹ See, e.g., *Rebel Oil Co. v. Atlantic Richfield Co.*, 51 F.3d 1421, 1441 (9th Cir. 1995); *Town Sound & Custom Tops, Inc. v. Chrysler Motors Corp.*, 959 F.2d 468, 486 n.24 (3d Cir. 1992); *Air Passengers Computer Reservation Sys. Antitrust Litig.*, 694 F. Supp. 1443, 146 (C.D. Cal. 1988), *aff'd*, 948 F.2d 536 (9th Cir. 1991).

⁵² See *NCAA*, 468 U.S. at 103 ("Per se rules are invoked when surrounding circumstances make the *likelihood* of anticompetitive conduct so great as to render unjustified further examination of the challenged conduct." (emphasis added)).

the conduct. Instead, suppose an artificially fixed price is "reasonable" because the defendants lack market power and prices above the competitive level provides ample justification for

about the general likelihood of consumer benefit justifications,⁴⁹ are required to make a decision, it would make sense to enjoin sometimes would turn out to be because it can be presumed that the benefits is low and experience the likelihood of harm, at least for a

the cost of gathering further information benefits.⁵⁰ The cost of gathering information is high because market power often makes information gathering also will be a reasonable price today can become more than be further presumed that the likelihood of errors, because, unlike public suits, it is not suited to evaluate whether prices if gathering this information can be unlikely that such naked price. Thus, according to the decision, it is not to allow this costly additional decision process even though to the likelihood of judicial errors. As a result,

U.S. 411, 423 (1990) (per se rule against effects legislative judgment that ultimately is, but also better goods and services") (quoting *United States*, 435 U.S. 671, 695 (1978)).
Principles of Antitrust Enforcement, 68 GEO. L.J.

Co., 51 F.3d 1421, 1441 (9th Cir. 1995); *Motorists Corp.*, 959 F.2d 468, 486 n.24 (3d Cir. 1991); *Antitrust Litig.*, 694 F. Supp. 1443, 1448 (D. Minn. 1991).

invoked when surrounding circumstances so great as to render unjustified further (analysis added)).

it is appropriate to apply per se illegality and condemn the conduct on the basis of these presumptions.

In contrast, in situations like horizontal mergers or *BMI*, where it is clear on the basis of a quick (and inexpensive) look that there is a significant likelihood that a horizontal restraint creates some consumer benefits, then there is a larger potential benefit from gathering information on market power and market effects. If that information is not too costly to generate and evaluate, then the more refined (and more expensive) decision process under the rule of reason will be appropriate. As the Court stated in *NCAA*, "Per se rules are invoked [only] when surrounding circumstances make the likelihood of anticompetitive conduct so great as to render unjustified further examination of the challenged conduct."⁵³ Accordingly, in a challenge to a horizontal restraint, courts must ascertain "whether the practice facially appears to be one that would always or almost always tend to restrict competition and decrease output . . . or instead one designed to increase economic efficiency and render markets more, rather than less, competitive."⁵⁴

Thus, the choice between per se rules and the rule of reason has a decision theoretic basis. Under the rule of reason, the court requires the parties (and itself) to spend the time, intellectual energy, and money to consider the full panoply of welfare costs and benefits or, in the words of Justice Brandeis,

the facts peculiar to the business to which the restraint is applied; its condition before and after the restraint was imposed; the nature of the restraint and its effect, actual or probable; the history of the restraint, the evil believed to exist, the reason for adopting the particular remedy, [and] the purpose or end to be attained.⁵⁵

The rule of reason requires a full-blown analysis of the efficiency benefits and market power harms flowing from the challenged conduct.⁵⁶ This additional information reduces the likelihood that the court will make an erroneous decision. Thus, under this framework the rule of reason is appropriate when the benefits of additional information exceed the costs.

⁴⁹ *NCAA*, 468 U.S. at 103-04.

⁵⁰ *BMI*, 441 U.S. at 19-20.

⁵¹ *Board of Trade of Chicago v. United States*, 246 U.S. 231, 238 (1918).

⁵² To clarify, market power harms refers to the consumer harm that would occur from the conduct if there were no efficiency benefits at all. Efficiency benefits are the consumer benefits that would occur from the conduct, if the conduct had no effect on market power harms. By balancing market power harms and efficiency benefits, the net effect on consumer welfare can be evaluated.

On the other hand, under the per se rule, the court decides the case on the basis of the presumptions brought from experience plus the preliminary information initially introduced by the parties. Per se analysis essentially prohibits the defendant from introducing certain information because those facts or arguments are irrelevant to the court's decision.⁵⁷ Under a decision theoretic framework, a per se rule is appropriate when the benefits of additional information are outweighed by the costs.

C. PER SE LEGALITY

The decision theoretic approach also provides a potential role for per se legality. Analysis of per se rules usually focuses on rules of per se illegality, as in the case of naked price fixing. However, there is nothing illogical about an analogous rule of per se legality for certain practices. Simply put, on the basis of certain preliminary information, a rule of per se legality would entitle a defendant to prevail regardless of any further information of anticompetitive effects. Indeed, such evidence would be inadmissible.

For example, it is legal for a firm with legitimate monopoly power to set prices that may exceed competitive prices.⁵⁸ One standard rationale for this rule has its basis in decision theory. Allowing claims that a firm is charging supracompetitive prices would require courts on a continuing basis to measure what prices would prevail if there were—contrary to fact—effective competition.⁵⁹ Courts are unlikely to carry out this undertaking on a continuous basis, either accurately or at a reasonable cost. Courts are not public utility commissions. Accordingly, the plaintiff in a monopoly pricing case is not permitted to claim an antitrust violation solely because the prices a firm charges exceed competitive prices.⁶⁰

In terms of the formal multi-stage decision process model, per se legality would be described as the branch of the decision process where a decision is made at Stage 2 or at Stage 4 to permit the conduct, and where the decision is based solely on the basis of certain preliminary information gathered initially plus presumptions. An example of this would be the safe harbor provisions of the Department of Justice and

⁵⁷ For a clear statement of this point, see Thomas Krattenmaker, *Per Se Violations in Antitrust Law: Confusing Offenses with Defenses*, 77 GEO. L.J. 165 (1988).

⁵⁸ See *United States v. Griffith*, 334 U.S. 100, 106 (1947); *United States v. U.S. Steel Corp.*, 251 U.S. 417, 451 (1919); *United States v. Aluminum Co. of Am.*, 148 F.2d 416, 429-31 (1945).

⁵⁹ Of course, another reason is to provide innovation and investment incentives to firms.

⁶⁰ This analysis is different when monopoly pricing is accompanied by exclusionary conduct.

per se rule, the court decides the case is brought from experience plus the introduced by the parties. Per se analysis from introducing certain information is irrelevant to the court's decision.⁵⁷ In short, a per se rule is appropriate when the benefits are outweighed by the costs.

LEGALITY

also provides a potential role for per se analysis. Usually focuses on rules of per se price fixing. However, there is nothing about per se legality for certain practices. In the presence of preliminary information, a rule of reason is more likely to prevail regardless of any efficiency effects. Indeed, such evidence

with legitimate monopoly power to raise prices.⁵⁸ One standard rationale for the rule is that a firm could require courts on a continuing basis to determine whether the firm's prices prevail if there were—contrary to the rule—no per se rule. This is unlikely to carry out this under the rule accurately or at a reasonable cost. Accordingly, the plaintiff is permitted to claim an antitrust violation if the firm's prices exceed competitive prices.⁶⁰

In the decision process model, per se analysis is the anchor of the decision process where the court is asked to permit the conduct, and the court is asked to permit the conduct on the basis of certain preliminary presumptions. An example of this is the Department of Justice and

Federal Trade Commission Horizontal Merger Guidelines.⁶¹ If the post-merger HHI falls short of 1000, then the merger is simply permitted to proceed. Even if there is preliminary evidence of a history of collusion or that there are no efficiency benefits (or even that the merger will reduce efficiency), the merger nonetheless will not be challenged. Economic theory does not claim or demonstrate that such a low HHI definitively proves that there can be no market power harms, particularly in the case of differentiated products. That is not the apparent rationale for the safe harbor. Instead, the safe harbor rule seems to be based on the presumption that the likelihood of anticompetitive effects is sufficiently small, and that gathering more complete information on market power harms and efficiency benefits is sufficiently difficult and costly that it is not economical to do so when the HHI is less than 1000.⁶²

D. TRUNCATED RULE OF REASON STANDARDS

Under the classic rule of reason analysis discussed above, the court gathers information pertinent to every issue before rendering its decision. This unstructured standard, which calls for analyzing every aspect of industry history and conduct, has been criticized as expensive, time-consuming, and unwieldy.⁶³ Courts and agencies have met this criticism by adopting a more structured rule of reason approaches that address the relevant antitrust issues in a specified sequence. Sometimes the first issue analyzed is efficiency benefits and sometimes market power and market power harms are analyzed first. In the parlance of Frank Easterbrook, sometimes the first "filter" is efficiency and sometimes it is market power.⁶⁴

For example, under the "quick look" rule of reason standard for horizontal price restraints set forth in *NCAA* and *Indiana Dentists*, antitrust courts analyze efficiency benefit claims first, at least on a preliminary basis, before reaching the issue of market power and market power harms. "As a matter of law, the absence of proof of market power does

⁵⁷ Merger Guidelines, *supra* note 40, at 20,573.

⁵⁸ The DOJ and FTC have also included safe harbors in their recent Health Care Guidelines. See Department of Justice and Federal Trade Commission, Statements of Antitrust Enforcement Policy in Health Care, reprinted in 4 Trade Reg. Rep. (CCH) ¶ 13,153 (1996).

⁵⁹ See Jennifer Gladieux, *Toward a Single Standard for Antitrust: The Federal Trade Commission's Evolving Rule of Reason*, 5 GEO. MASON U. L. REV. 471 (1997) (summarizing the literature); James Dowd, *Oligopsony Power: Antitrust Injury and Collusive Buyer Practices in Input Markets*, 76 BOSTON U. L. REV. 1075 (1996); Phillip Areeda, *The Changing Contours of the Per Se Rule*, 54 ANTITRUST L.J. 27 (1985); Easterbrook, *supra* note 15; Robert Pitofsky, *In Defense of Discounters: The No-Frills Case for a Per Se Rule Against Vertical Price Fixing*, 71 GEO. L.J. 1487 (1983).

⁶⁰ Easterbrook, *supra* note 15.

Thomas Krattenmaker, *Per Se Violations*, 77 GEO. L.J. 165 (1988).

⁶¹ 106 (1947); *United States v. U.S. Steel*, 330 U.S. 35, 148 F.2d 416 (1944).

⁶² Innovation and investment incentives to firms. Price fixing is accompanied by exclusionary

not justify a naked restriction on price or output" and such a restriction "requires some competitive justification even in the *absence* of a detailed market analysis."⁶⁵ In contrast, a rule of reason analysis of joint ventures and nonprice vertical restraints typically resolves market power issues *before* taking up the validity of the specific efficiency claims.⁶⁶

Likewise, following *NCAA* and *Indiana Dentists*, the FTC announced in *Mass. Board* that it too would engage in a similar "structured" rule of reason analysis. The FTC stated that it would analyze horizontal restraints under an "inherently suspect" standard, which it explained as follows:

First, we ask whether the restraint is "inherently suspect." In other words, is the practice the kind that appears likely, absent an efficiency justification, to "restrict competition and decrease output." . . . If the restraint is not inherently suspect, then the traditional rule of reason, with attendant issues of market definition and power, must be employed. But if it is inherently suspect, we must pose a second question: Is there a plausible efficiency justification for the practice? That is, does the practice seem capable of creating or enhancing competition (e.g., by reducing the costs of producing or marketing the product, creating a new product, or improving the operation of the market)? Such an efficiency defense is plausible if it cannot be rejected without extensive factual inquiry. If it is not plausible, then the restraint can be quickly condemned. But if the efficiency justification is plausible, further inquiry—a third inquiry—is needed to determine whether the justification is really valid. If it is, it must be assessed under the full balancing test of the rule of reason. But if the justification is, on examination, not valid, then the practice is unreasonable and unlawful under the rule of reason without further inquiry—there are no likely benefits to offset the threat to competition.⁶⁷

Even more recently, Assistant Attorney General Joel Klein proposed that the DOJ adopt its own truncated rule of reason analysis—coined the "stepwise approach"—for evaluating horizontal restraints.⁶⁸

⁶⁵ *FTC v. Indiana Fed'n of Dentists*, 476 U.S. 447, 460 (1986) (quoting *NCAA*, 468 U.S. at 109–10). For more recent cases applying a truncated rule of reason, see *United States v. Brown Univ.*, 805 F. Supp. 288 (E.D. Pa. 1992); *United States Healthcare, Inc. v. Healthsource, Inc.*, 986 F.2d 589 (1st Cir. 1993).

⁶⁶ See *Continental T.V., Inc. v. GTE Sylvania Inc.*, 433 U.S. 36, 53 (1977); see also U.S. Department of Justice Antitrust Enforcement Policy Guidelines for International Operations (1988) § 3.42, reprinted in 4 Trade Reg. Rep. (CCH) ¶ 13,109; HERBERT HOVENKAMP, *FEDERAL ANTITRUST POLICY* § 11.6a, b (1994).

⁶⁷ *Massachusetts Bd. of Optometry*, 110 F.T.C. 549, 604 (1990); cf. *California Dental Ass'n*, 5 Trade Reg. Rep. (CCH) ¶ 24,007, at 23,787–797, 27,807–815 (seeming to abandon the *Mass. Board* approach in favor of a more traditional *per se* rule of reason analysis).

⁶⁸ Joel Klein, A Stepwise Approach to Antitrust Review of Horizontal Agreements (Nov. 7, 1996), available at <www.usdoj.gov/atr/public/speeches/jikaba.htm>. Pursuant to the "stepwise approach," when confronting horizontal agreements among competitors, the DOJ will first "ask whether it is the type of restraint that is currently recognized by the courts as being a *per se* violation, such as an unadorned agreement to fix prices, curtail

or output" and such a restriction even in the *absence* of a detailed reason analysis of joint ventures by resolves market power issues and efficiency claims.⁶⁶

In Dentists, the FTC announced in a similar "structured" rule of how to analyze horizontal restraints, which it explained as follows:

"inherently suspect." In other words, likely, absent an efficiency defense, a decrease in output. . . . If the traditional rule of reason, which balances market power, competition and power, must be rejected, it must pose a second question: Is the restraint for the practice? That is, does the restraint enhance competition (e.g., by increasing the product, creating new markets, or increasing the size of the market)? Such an inquiry can be rejected without extensive analysis. If the restraint can be quickly rejected, further analysis is not required. If the restraint is plausible, further analysis is required to determine whether the justification is, on examination, sufficient. If the restraint is, on examination, sufficient and unlawful under the rule of reason, there are no likely benefits to

General Joel Klein proposed a new rule of reason analysis—coined the "structured" rule of reason for horizontal restraints.⁶⁸

460 (1986) (quoting *NCAA*, 468 U.S. at 100-08; *United States v. United States Healthcare, Inc.* v.

433 U.S. 36, 53 (1977); see also U.S. Merger Guidelines for International Operations (CH) ¶ 13.109; HERBERT HOVENKAMP,

19, 604 (1990); cf. *California Dental Association v. FTC*, 97, 27,807-815 (seeming to abandon the per se rule of reason analysis).

view of Horizontal Agreements (Nov. 1998) <www.ftc.gov/ftc/press/jikaba.htm>. Pursuant to the new rule of reason, the agreements among competitors, the rule of reason is currently recognized by the rule of reason to fix prices, curtail

Hence, in the case of horizontal price restraints such as joint pricing by competitors, there appears to be a presumption that these restraints often lead to significant anticompetitive harm. There is uncertainty about the magnitude of the harm, but even the lower bound apparently is considered significant. In contrast, the existence and the magnitude of efficiency benefits appears to be considered far more uncertain. Thus, in decision theoretic terms, the benefit of gathering information on efficiencies exceeds the benefit of gathering information about market power harms. On the cost side, the view seems to be that it is relatively more difficult to gather information on implicit market power harms than on efficiency benefits. Market power analysis requires a detailed study of market definition, ease of entry, and competitive interaction.⁶⁹ In contrast, efficiency claims often can be easily rejected by evaluating the scope of the restraint relative to alternatives, particularly alternatives that do not involve joint pricing or perhaps any joint conduct at all.⁷⁰

In the case of horizontal mergers and nonprice vertical restraints, the presumptions regarding the likelihood of market power harms and the likelihood of achieving efficiencies appear different. With respect to these classes of restraints, efficiency benefits are considered plausible and generally valid.⁷¹ The question of market power harms appears more uncertain, however. Thus, under the decision theoretic view it makes more sense to analyze market power and market power harms first, because if there is little market power, it is probably the case that the challenged conduct is socially beneficial. In addition, many times these restraints are adopted by firms that obviously are too small to even arguably exercise market power. Only if market power harms are found to be likely would it then be economical to measure the magnitude of efficiency benefits and balance them against the likelihood of market power harms.⁷²

output, or divide markets." If it is, the agreement is condemned without further analysis. If it is not, the Department "inquires whether there [is] a procompetitive justification for the agreement." If the parties fail to come forward with "real-world evidence" demonstrating the existence of efficiencies, the challenged agreement is condemned without an inquiry into market power. However, if the parties can prove significant procompetitive benefits to the agreement, the Department will analyze the agreement under a full-blown rule of reason analysis. See also A. Douglas Melamed, *Exclusionary Vertical Agreements*, Speech Before the ABA Antitrust Section (Apr. 2, 1998), available at <www.usdoj.gov/atr/public/speeches/1623.htm>.

⁶⁶ See generally *Merger Guidelines*, *supra* note 40.

⁷⁰ See *Indiana Dentists*, 476 U.S. at 464-68; *NCAA*, 468 U.S. at 100-08.

⁷¹ See *Sylvania*, 433 U.S. at 54; *Merger Guidelines*, *supra* note 40, at 20,573-574 ("As a consequence, in the majority of cases, the Guidelines will allow firms to achieve available efficiencies through mergers without interference from the Agency.").

⁷² *Sylvania*, 433 U.S. at 54; *Merger Guidelines*, *supra* note 40, at 20,573-574.

In terms of our formal decision theoretic model, those "quick look" standards that evaluate the purported efficiency justifications for the challenged conduct would be described as involving the choice to first gather more complete information on efficiency benefits at Stage 5. If efficiency benefits are found to be small enough, the conduct is prohibited at Stage 6. If they are moderate, the court then gathers more complete information on market power at Stage 6 and renders a decision on the merits at Stage 7. Following *NCAA*, this decision process often is applied to horizontal price restraints. On the other hand, a "structured" rule of reason that uses market power as the first filter would be described as the first choice to gather more complete information on market power harms at Stage 5. If these harms are found to be small enough, the conduct is prohibited at Stage 6. If they are moderate, the court then gathers more complete information on efficiency benefits at Stage 6 and renders a decision on the merits at Stage 7.⁷³

E. THE LIMITS OF THE QUICK LOOK RULE AND KAUPER'S QUICK LOOK RULE

Under the quick look truncated rule of reason standard set forth in *NCAA*, courts essentially are directed to examine efficiencies first. They often do not first examine even easily available information that suggests a lack of market power. Our decision theoretic approach suggests that rigid adherence to this aspect of the *NCAA* standard may not always be efficient.

For example, suppose that one night at the Grange two small wheat farmers are overheard (by a zealous young staffer from a nearby DOJ regional office) discussing the price at which they may offer their wheat to the local grain elevator. Suppose further that the farmers clearly have agreed to fix the price of their wheat. Suppose the farmers try to justify their conduct on the grounds that they intended to protest recent changes in the U.S. Department of Agriculture policies.

Putting aside for the moment the issue of prosecutorial discretion, suppose this case actually were brought by the government. What is the outcome? The answer seems clear: under well-established Sherman Act jurisprudence, the political protest defense would be rejected and the farmers would be liable under the per se rule. Indeed, this essentially was the result in *SCTLA*.⁷⁴

⁷³ Following *Sylvania*, this decision process often is applied to nonprice vertical restraints. The per se rule against tying discussed in *Jefferson Parish Hospital* begins with market power, but then surely reaches a final decision in Stage six, forgoing efficiency information (unless efficiency claims amount to a "single product claim").

⁷⁴ See *FTC v. Superior Ct. Trial Lawyers Ass'n*, 493 U.S. 411 (1990).

If, h
the far
(1) pr
marke
dence
is no s
On the
in that
politic

Alth
welfare
of reas
That is
raising
The ex
causal
sumpti
might
conduc
decide
the cor
are hig
two far
"if we
evidenc
the like
warrant

Shou
This qu
further
that the
likeliho
small. It

⁷⁵ Unde
itself is a
reason. St
rev'd, 493
rationale

⁷⁶ The
bad, abse

⁷⁷ See, e.,
that is the

oretic model, those "quick look" efficiency justifications for the conduct as involving the choice to first examine efficiencies at Stage 5. If the information is small enough, the conduct is prohibited. If not, the court then gathers more information at Stage 6 and renders a decision. Under the "structured" approach, this decision process often is the first filter. On the other hand, a "structured" approach where the first filter would be described as the first filter would be described as the first filter. If the information on market power is found to be small enough, the conduct is prohibited. If the efficiencies are moderate, the court then examines efficiencies at Stage 6 and renders a decision.⁷³

QUICK LOOK RULE AND STRUCTURED LOOK RULE

Under the rule of reason standard set forth in *Leegin*, the court first examines efficiencies. They examine the available information that suggests that the decision theoretic approach suggests that the NCAA standard may not always

be applied to the Grange two small wheat growers' staff from a nearby DOJ which they may offer their wheat. Under the rule of reason, the court clearly has to suppose the farmers try to justify their protest to recent antitrust policies.

Under the rule of prosecutorial discretion, the government has the discretion to sue or not. What is the government's well-established Sherman Act standard would be rejected and the rule of reason. Indeed, this essentially

is applied to nonprice vertical restraints. *Parish Hospital* begins with market power, forgoing efficiency information (unless "impossible").
493 U.S. 411 (1990).

If, however, courts took the decision theoretic approach set out here, the farmers might prevail. The farmers could argue as follows: based on (1) presumptions about the relationship between market power harms, market shares, and market concentration and (2) the preliminary evidence regarding the market shares of these two farmers, there obviously is no significant likelihood of any consumer harm from the agreement. On the benefit side, the farmers get a private benefit from the agreement in that they feel good about their protest, and it also might have the political effect they desire.⁷⁵

Although this private benefit obviously would not qualify as a consumer welfare benefit worthy of balancing against price increases in the rule of reason, it does indicate a non-anticompetitive motive for the conduct.⁷⁶ That is, courts often assume that price fixing is likely to have a price raising effect based on the fact that the parties choose to fix prices.⁷⁷ The existence of this alternative motivation for the conduct breaks that causal connection. In light of this alternative motive, the standard presumptions used to support per se illegality do not hold. Instead, they might be replaced by other presumptions that might suggest that this conduct is competitively innocuous. Thus, if the court were required to decide solely on the basis of the preliminary evidence and presumptions, the conduct might not be condemned out of hand because consumers are highly unlikely to be harmed and the conduct clearly benefits the two farmers. As a decision theorist might put it in probabilistic terms, "if we have to make a decision now, based solely on the preliminary evidence in hand, the likelihood of net consumer harm is too low and the likelihood of purely private benefits to the farmers is too high to warrant prohibiting the conduct."

Should the farmers get a rule of reason trial or dismissal of the case? This question involves analysis of the costs and benefits of gathering further information. On the facts of this hypothetical, it would appear that the cost of additional information likely exceeds the benefit. The likelihood of finding facts supporting an anticompetitive effect is quite small. It is exceedingly doubtful that a more searching inquiry will change

⁷³ Under the reasoning of Judge Douglas Ginsburg, the political protest justification itself is a type of "efficiency" that would entitle the farmers to a trial under the rule of reason. *Superior Ct. Trial Lawyers Ass'n v. FTC*, 856 F.2d 226, 248-49 (D.C. Cir. 1988), *rev'd*, 493 U.S. 411 (1990). The decision theoretic approach provides a somewhat different rationale based on motivation rather than efficiency.

⁷⁶ The protest also may have a political effect that is not easily quantified as good or bad, absent much more information.

⁷⁷ See, e.g., *NCAA*, 468 U.S. at 100-03 (courts can presume harm from price fixing because that is the goal of price fixers).

the preliminary determination that the conduct is innocuous. Moreover, even if the conduct turns out to be harmful, the magnitude of the likely harm will be extremely small, certainly relative to the costs of the additional information. Thus, dismissing the case appears to make more sense than evaluating the conduct further under a costly rule of reason.⁷⁸

This discussion is not intended to be definitive. We do not claim that decision theory necessarily would lead a court to permit the conduct on these preliminary facts. Instead, our point is that the conventional approach systematically ignores low-cost evidence of lack of market power that could be useful to the decision maker. Decision theory demonstrates that ignoring this information does not make economic sense.

In an earlier article, Professor Thomas Kauper made a similar point about the rational use of easily available evidence.⁷⁹ In its simplest form, this type of quick look decision process would first evaluate the lowest-cost, most easily available information, regardless of whether that information focuses on market power harms or efficiency benefits or both. The court should gather this subset of preliminary information and then either decide the case on the basis of that information or choose to gather additional information, depending on the costs and benefits of additional information.⁸⁰

In terms of the formal model, this version of the quick look involves gathering certain limited additional information on either efficiency benefits, market power harms, or both, then rendering a decision on the basis of this information at Stage 4, if it is not economical to gather more complete information beyond that stage. This decision process could be appended to the conventional quick look to account for obvious evidence of lack of market power harms, as in the farmers hypothetical discussed above. A similar stage could be appended to the structured rule of reason (with market power as the first filter) to account for clearly defective efficiency claims.

The decision theoretic approach and this version of Professor Kauper's quick look standard are inconsistent with the standard reading of the

⁷⁸ In *SCTLA*, the Supreme Court suggested that there are social benefits to a clear rule even if there is no apparent harm. 493 U.S. at 439 n.2. But, this decision theoretic rule also is clear.

⁷⁹ Thomas Kauper, *The Sullivan Approach to Horizontal Restraints*, 75 CAL. L. REV. 914 (1987). Professor Kauper suggested a complex multi-stage approach. We analyze a simplified variant of his approach here to focus on his fundamental insight.

⁸⁰ As discussed above, the cost of the information is not the only relevant consideration. It also makes sense to investigate issues over which the decision maker faces greater uncertainty, because resolution of these issues is more likely to determine the decision, thereby obviating the need for further information gathering.

vario
NCA.
in ev
powe
pensi
cienc
inexp
mark
the n

On
hold i
in the
of the
Indee
Finally
under
of rea

Of c
torial c
would
Howev
process
problem
princip
way. We
create a
court fa
presum
tional i
the like

Sumn
of the F
judgmer

⁸¹ Califor
seen, here
effects of
sufficiently
a sound co
inflict com

conduct is innocuous. Moreover, harmful, the magnitude of the injury relative to the costs of the case appears to make more sense under a costly rule of reason.⁷⁸

definitive. We do not claim that a court to permit the conduct at point is that the conventional evidence of lack of market power. Decision theory demonstrates not make economic sense.

Kauper made a similar point in evidence.⁷⁹ In its simplest form, would first evaluate the lowest-cost regardless of whether that information or efficiency benefits or both. preliminary information and then that information or choose to go on the costs and benefits of

tion of the quick look involves information on either efficiency when rendering a decision on it is not economical to gather stage. This decision process quick look to account for obvious as in the farmers hypothetical appended to the structured (structured filter) to account for clearly

version of Professor Kauper's the standard reading of the

are social benefits to a clear rule 1.2. But, this decision theoretic rule

ntal Restraints, 75 CAL. L. REV. 914 stage approach. We analyze a simplidamental insight.

not the only relevant consideration. the decision maker faces greater re likely to determine the decision, gathering.

various versions of the truncated rule of reason approaches set forth in NCAA and its progeny. Rather than always starting with efficiencies first in evaluating horizontal restraints, decision theory suggests that market power should be analyzed first if the market power information is inexpensive to gather and evaluate relative to information on potential efficiency benefits. Alternatively, it might be most economical to gather inexpensive preliminary information on both efficiency benefits and market power harms and then recharacterize the case on the basis of the new information.

Once the case is recharacterized, the court still has a choice. It might hold in favor of the defendant and dismiss the case, as suggested earlier in the farmers hypothetical. Alternatively, the court might hold in favor of the plaintiff and find the defendant liable under a per se standard. Indeed, this seems to be the approach taken by the FTC in *Cal. Dental*.⁸¹ Finally, the court may choose to gather more complete information under either the standard NCAA-type quick look or the classic rule of reason.

Of course, regulatory agencies might be tempted to use their prosecutorial discretion and decide not to bring the farmers case. This approach would not expose the shortcomings of the current antitrust regime. However, it would amount to accepting a systematic flaw in the current process rather than correcting it. Instead of avoiding the underlying problem in this way, it makes more sense to formulate a coherent and principled approach that reaches the answer in a more straightforward way. We believe that the better approach is to apply decision theory to create a legal decision process that rests on (1) a recognition that the court faces uncertainty, albeit tempered by preliminary information and presumptions, and (2) the recognition that the costs of gathering additional information to resolve this uncertainty may or may not exceed the likely benefits.

F. SUMMARY JUDGMENT IN ANTITRUST

Summary judgment in the federal legal system is governed by Rule 56 of the Federal Rules of Civil Procedure. Rule 56 provides that summary judgment should be rendered for the moving party upon demonstrating

⁸¹ *California Dental Ass'n*, 5 Trade Reg. Rep. (CCH) ¶ 24,007, at 23,791 ("As will be seen, here, application of the rule of reason is simple and short. The anticompetitive effects of [the] advertising restrictions are sufficiently clear, and the claimed efficiencies sufficiently tenuous, that a detailed analysis of market power is unnecessary to reaching a sound conclusion, and, in any event [the defendant] clearly had sufficient power to inflict competitive harm.").

that there is no genuine issue as to any material fact and that the moving party is entitled to a judgment as a matter of law.⁸²

Some aspects of summary judgment rules closely track our analysis. For example, one important function of summary judgment in the legal process is to save the costs of processing claims that are unlikely to succeed at a full trial. Similarly, one can read *Matsushita*⁸³ to require advocating antitrust claims that are economically less plausible to come forward with more convincing factual evidence to survive a motion for summary judgment.⁸⁴ In our model, summary disposition at Stage 2 (or Stage 4) is more likely to be granted where the initial presumption on an issue suggests that the party is less likely to succeed in the full information inquiry at Stage 7. Implausibility corresponds, of course, to an initial presumption disfavoring the claim. The initial information generated at Stage 1 would be treated as the evidence introduced as part of the summary judgment motion. Then, in Stage 2 (or Stage 4), the court would decide whether or not a costly full trial to learn the true values of benefits and harms would be economical.⁸⁵

Summary judgment rules, however, also have a second function that is not explicitly captured by our multi-stage process. Summary judgment has a discovery function. It is designed to force the parties to reveal their existing evidence. This function is consistent with the value of reducing legal process costs that is fundamental to our analysis, but the role of the adversarial process in generating and disclosing information has not been formally included in our analysis. Consequently, summary judgment rules that focus on this discovery function would not necessarily be consistent with the decision theoretic analysis set out so far. For example, pursuant to Rule 56 the existence of disputed facts regarding material issues is sufficient to defeat a motion for summary judgment. Aside from the case of economically implausible claims discussed above,

⁸² *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242 (1986).

⁸³ *Matsushita Elec. Indus. Co. v. Zenith Radio Corp.*, 475 U.S. 574 (1986).

⁸⁴ In fact, the Supreme Court suggested this interpretation of *Matsushita* in *Eastman Kodak Co. v. Image Technical Services, Inc.*, 504 U.S. 451, 468 (1992) ("In [*Matsushita*], the Court determined that the plaintiff's theory of predatory pricing was . . . 'speculative,' and was not 'reasonable.' Accordingly, the Court held that a reasonable jury could not return a verdict for the plaintiffs and that summary judgment would be appropriate against them unless they came forward with *more persuasive evidence* to support their theory.") (emphasis added).

⁸⁵ Summary judgment also could be formalized as Stage 6 of our multi-stage decision analysis. Issue B (benefits) could be treated as the "coarser" type of evidence introduced as part of the summary judgment motion and issue H (harms) could be viewed as the more "refined" evidence introduced at the trial. A summary judgment motion claims that the level of B initially shown does not warrant the cost of the trial to learn the true value of H.

any material fact and that the moving party has shown that the matter is one of law.⁸²

ent rules closely track our analysis. of summary judgment in the legal process claims that are unlikely to be true can read *Matsushita*⁸³ to require economically less plausible to come forward with evidence to survive a motion for summary disposition at Stage 2 (or where the initial presumption on an issue is to succeed in the full information process responds, of course, to an initial presumption on the initial information generated at Stage 2 (or Stage 4), the court will grant summary judgment if the evidence introduced as part of the motion for summary judgment is not sufficient to learn the true values of the issue.⁸⁵

, also have a second function that is to force the parties to reveal their information consistent with the value of reducing uncertainty to our analysis, but the role of summary judgment and disclosing information has not been fully analyzed. Consequently, summary judgment function would not necessarily be the same as the analytic set out so far. For instance, the presence of disputed facts regarding a motion for summary judgment. Economically less plausible claims discussed above,

42 (1986).

Corp., 475 U.S. 574 (1986).

interpretation of *Matshusita* in *Eastman*, 451, 468 (1992) ("In [*Matsushita*], the predatory pricing was . . . 'speculative,' and it is not clear that a reasonable jury could not return summary judgment would be appropriate against the evidence to support their theory.")

as Stage 6 of our multi-stage decision process is a "coarser" type of evidence introduced at Stage H (harms) could be viewed as the summary judgment motion claims that the cost of the trial to learn the true value

the probability that a jury would find for the nonmoving party does not appear to matter. In this regard, the current legal standard for summary judgment is inconsistent with our decision theoretic approach.

V. CONCLUSION

This article has set out a decision theoretic framework for analyzing alternative antitrust standards. Under this framework, the appropriate standard depends on the configuration of informational presumptions, costs, and benefits for a particular case or class of cases. The presumptions represent the initial general and case-specific information known to the decision maker. The costs are those of gathering and evaluating information, which must be borne by the courts, the parties involved in the litigation, and third parties. The benefits of information involve the reduced likelihood of factual and judicial error, which depends on the degree of uncertainty faced in the absence of the information and the importance of the issue to the proper outcome of the case.

Knowledge of these presumptions, costs, and benefits can be used to specify the optimal analytical standard. Indeed, any one of the various standards used in antitrust could be optimal for a certain configuration of informational presumptions, costs, and benefits. It does not follow from this observation, however, that the actual configuration for a particular class of cases (e.g., horizontal price restraints) justifies the particular antitrust standard that currently is used by the courts. Rather, an alternative standard might be more appropriate.

We have not claimed to have determined the most appropriate standard for any particular type of case. Our goal has been more modest. We have stated the necessary relationship between the informational structure and the appropriate standard. The courts and the agencies can use this relationship, along with their knowledge about the configuration, to determine the best standard.

We can, however, provide a few suggestions for potential improvements in the application of antitrust standards. First, the standard for horizontal price restraints should not ignore low-cost information on market power when it is available. A rigid focus solely on efficiency benefits to the exclusion of absolutely all market power information is unlikely to be informationally efficient, when that market power information has trivial cost. Second, in such cases, the evaluation of efficiencies in the initial stage should be limited to more easily available information and should not involve a very costly quantitative evaluation of the magnitude of likely efficiency benefits. It is only necessary to carry out a more refined analysis of the likelihood of efficiency benefits when there are probab-

market power harms. Third, merger analysis that ignores all case-by-case analysis of efficiency benefits and focuses exclusively on market power harms similarly seems inefficient. As suggested by the FTC's and DOJ's recent change in policy,⁸⁶ merger efficiencies can be gauged accurately enough to eliminate the need to rely solely on presumptions. Fourth, judicial bodies use sequential information gathering and decision analysis to some extent now, but they could utilize it in a greater variety of settings in order to reduce informational costs. Moreover, in contrast to the behavior of many judicial bodies and regulatory agencies, our framework suggests that the adoption of truncated information and decision analysis makes far more sense before information is gathered rather than after.

R

Duri
restrain
nation:
focus c
seeks t
those a
into na

Muc
interna
channe
claims i
and U
import
Trade
monop
spelling
and ille
ments,
rebates
vertical
tion by
actions

* Aetna
Universit
Universit
First Cen
honorary
commen

¹ See F
DISTRIBU

² See H

⁸⁶ See Merger Guidelines, *supra* note 40, at 20,573-574 (adding efficiency section).